e-Bug
Peer Educator
Training Manual

Operated by
Public Health England
# Contents

**Introduction** .................................................................................................................................................. 3  
What is e-Bug? ................................................................................................................................................. 4  
What does being a Peer Educator involve? ................................................................................................. 4  
Tips on how to teach your peers ................................................................................................................ 4  

**The e-Bug Roadshow Stands** ..................................................................................................................... 5  
Microbe Mania .................................................................................................................................................. 6  
Horrid Hands .................................................................................................................................................... 9  
Super Sneeze .................................................................................................................................................... 15  
How Clean Is Your Kitchen? ......................................................................................................................... 19  
Antibiotic Awareness ..................................................................................................................................... 23  

**Workbook** ................................................................................................................................................... 29
Introduction

Congratulations on being selected as a Peer Educator!

Over the next two days you will learn about the e-Bug road show and how to deliver the show to your peers. You will then put all this into practice by teaching junior school students about microbes and the spread of infection.

Throughout this training manual you will find spaces to write notes on each of the road show stands. As you are trained on how to deliver the activities, you may find it useful to write down key points that you want to remember.

The workbook section at the back of the manual gives space for you to fill in details about the day, things you have learnt and information on the challenges you faced during the workshop.

We hope you enjoy your experience as a Peer Educator!

Please fill in your details here:

Name ____________________________________________

School Name ______________________________________

Class ____________________________________________

Date ____________________________________________
**What is e-Bug?**

e-Bug is a European project that aims to educate children and young people about microbes and the spread, prevention and treatment of infection. e-Bug also aims to increase awareness of the benefits of correct antibiotic use and how inappropriate use can lead to antibiotic resistance in the community.

**What does being a Peer Educator involve?**

As a peer educator, you will be responsible for the delivery of the e-Bug road show to younger children. Through this pack, and through demonstrations by e-Bug and Environmental Health staff, you will learn how to use the e-Bug road show and the key messages that it introduces.

During the workshop, you will be asked to complete knowledge change questionnaires, to enable the workshop to be evaluated. You may also be interviewed by e-Bug and Environmental Health staff after the workshop, to allow us to obtain your views on how the project ran and whether you thought it was successful.

**Tips on how to teach your peers**

- Be enthusiastic, particularly when talking about how disgusting germs can be!
- Ask the students questions to keep their attention
- Use word like ‘bugs’ and ‘germs’, that young children will understand
- Ask the students their opinions on what they’ve learnt
- If the students are engaged in an activity, make sure you talk to them during it to explain the learning objectives
- Don’t worry about repeating facts, it will help young children to remember and learn
- At the end of the activity, sum up the key learning objectives
The e-Bug Road show Stands

The e-Bug road show covers the following topics: Introduction to microbes, hand hygiene, respiratory hygiene, food hygiene and antibiotics. Each topic has a backing stand and interactive activity. Here you will find the learning objectives, materials required and instructions for each stand. A copy of the backing stand for each topic is also included.

Introduction to the Road show

The e-Bug road show can be introduced to students by explaining what they are going to learn. For younger children, start by asking who likes science and tell them that they are going to see how science can be fun! For this introduction, you will need to prepare a balloon filled with glitter.

1. Ask the students if they know what a microbe is. They may use words such as germs or bugs. Explain that there are 3 types of microbes: fungi, bacteria and viruses.
2. Fungi are the largest microbe and they can be useful or harmful. Give an example of useful and harmful fungi e.g. mushrooms and athletes foot.
3. Bacteria are the middle size microbe and can also be useful or harmful. Examples of useful bacteria are those that are used to make yoghurt, and harmful bacteria can cause sore throats. Ask the children who has ever had a sore throat.
4. Viruses are the smallest type of microbe and are mostly harmful. Some scientists can use viruses in their lab to help make new medicines, but generally all viruses are bad. Viruses cause colds and flu.
5. Remind the children the names of the microbes and their sizes. Explain that most microbes are too small to see with the naked eye and that it can be hard to understand their sizes.
6. Get the children to image a fungus the size of the hall and ask how big they think bacteria would be. Show the children a balloon – this is how big the bacteria would be. Ask how big they think a virus would be. Pop the balloon and explain that a virus would be the size of a piece of glitter.
7. The children now split into their groups and rotate around the stands. Each stand takes approximately 10 minutes to complete. It is useful for someone to time the stands and let everyone know when to rotate.
Materials

- Coloured play-dough
- Petri dishes
- Permanent black marker
- Placemats
- Laminated pictures of microbes (white plastic folder)
- Laminated information sheets on microbes
- Tablecloths
- Selotape

Learning Objectives

- There are three different types of microbes: fungi, bacteria and viruses
- Microbes are all different shapes and sizes
- Some are useful but some can be harmful
- Microbes are found everywhere
- Most microbes are too small to be seen with the naked eye

Set up

1. Set up placemats with a small amount of playdough and a petri dish on each mat. Try to ration the playdough and don’t leave lots of out for people to take their own, or you may run out.
2. Place laminated pictures of microbes around the table.
This activity aims to introduce children to different types of microbes and microbe shapes by allowing them to make a microbe out of playdough.

1. Remind the children, with the visual aid and information on the backing stand, that there are three different types of microbes (fungi, bacteria and viruses) and how these are different.
2. Encourage children to take some playdough and to make a microbe in a Petri dish.
3. Explain they can make any microbe from the laminated pictures.
4. Point out common forms of microbes that they might have heard of on the laminated sheets to get them started.
5. Ask them which microbe they are making and tell them a bit about it e.g. is it a fungi, bacteria or virus and it is useful or harmful (refer to the information sheets provided).
6. When they have finished, write what they have made on the petri dish with the permanent black marker for them to take home.
7. Add a few pieces of selotape around the edge of the petri dish to secure the lid.
Microbes!

- Microbes appeared on earth about 3.5 billion years ago.
- There are more microbes than all other animals and plants in the world.
- Some microbes live in places where nothing else can live.
- If there were no microbes, there would be no people!
- Microbes come in all shapes and sizes.

1: Fungi
- The giants of all microbes!
- Fungi can be good and bad — good fungi can be used to make bread (yeast) or antibiotics. Bad fungi can cause mould on bread or diseases such as athletes foot!

2: Virus
- Viruses are parasites — they need to live inside the cells of animals, plants and even other microbes to live!
- There are very few good viruses and most viruses make us ill!

3: Bacteria
- Bacteria are found EVERYWHERE including all over our bodies.
- There are three different shapes of bacteria and scientists use these shapes to help identify them:
  - Bells (coccus)
  - Spirals (spirillum)
  - Rods (cuboid)

Good Microbes
- Most microbes are good for us and do not cause disease.
- Microbes generate at least half the oxygen we breathe.
- Microbes live on the roots of plants and help them absorb food and water.
- Microbes are responsible for creating foods such as wine, cheese, vinegar, yogurt, and chocolate!

Bad Microbes
- Some microbes can be harmful to humans and cause disease or illness.
- The bad microbes are known as pathogens but are sometimes called bugs or germs.
- Pathogens spread by close contact, coughs, sneezes, food water and animals.
- Disease causing microbes that spread from person to person are known as infectious.
- Bad microbes love it when you, your home, school or environment is unhygienic or dirty.
- Remember, microbes multiply very fast so it only takes one bad microbe to get inside your body and make you sick!
- Many of our everyday illnesses are caused by viruses e.g. ear ache, colds, flu, most coughs and sore throats!

Contact Primary Care Unit
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0300 422 5062 www.e-bug.eu
Please use this space to make notes on the Microbe Mania stand.
Horrid Hands

Learning Objectives

- Microbes can spread through touch
- We pick up microbes from the things we touch and can spread these to other people
- Washing hands can help remove microbes
- Washing hands is one of the best ways to prevent the spread of microbes
- Washing hands with soap and water is better than washing hands with water alone

Activity 1

Materials

- 2 washing up bowls
- GloGerm gel
- UV light
- Kitchen roll
- Bin liners
- Duct tape

Set up

1. Shake the GloGerm gel bottle to mix the contents or the demonstration may not work.
2. Fill the washing up bowls with water.
3. The water should be changed every 2-3 groups and should not get too murky.
This activity demonstrates what happens if we don’t wash our hands and how germs can spread. The concept is to pretend that the participants have just got their hands dirty i.e. by sneezing in them or preparing a meal and then to see how the germs will spread.

1. Explain to the students that microbes are everywhere and they get on to our hands from the things that we touch. We then pass these on to other people. Washing our hands is the best way to remove these microbes.

2. Explain when we should wash our hands – before and after preparing food, after using the toilet, after touching animals and after coughing or sneezing.

3. Ask the students to line up one behind the other like a queue. If there are more than 5 students, form 2 queues so that there are no more than 5 students per queue.

4. Squeeze a little GloGerm gel into the student at the front of the line’s hands and ask them to rub in the ‘pretend microbes’.

5. The person in the front should then turn around and shake hands with the person behind them, and so on, until they have all shaken hands with the person behind them in the queue.

6. Use the UV light to show the students how the germs got passed down the line – point out how dirty their hands are and how the germs spread because they didn’t wash their hands. The person at the back of the queue should still have germs on their hands.

7. Ask participants to rinse their hands in the washing up bowls as they would usually and give kitchen roll to each person to dry their hands.

8. The UV light can be used again to see how many germs remain.

9. Demonstrate the proper way to wash hands with soap and ask them to follow your movements: do the six step technique – palm to palm, back of the hands, in between the fingers, back of the fingers, the thumbs, tips of the fingers (illustrated on the backing stand).
Activity 2

This second activity may be used if time permits.

**Materials**

- Small plastic bowls
- Water
- Washing up liquid
- Pepper
- Cocktail sticks

**Set up**

1. Set up a few bowls of water with pepper sprinkled on the surface, a few plain bowls of water, and another bowl with washing up liquid in.

**Instructions**

This activity aims to show why washing with soap and water is better than using water on its own. Demonstrators should help children with cocktail sticks to ensure safety. The bowls must be rinsed after each group for this to work.

1. Tell participants that the surface of the water in the bowls represents their hands, and that the pepper represents harmful microbes that need to be washed away.
2. Dip the end of a cocktail stick into the plain bowl of water and then into the pepper water. Gently swirl the cocktail stick around and explain that using water to wash your hands only moves the microbes around.
3. Dip the cocktail stick into the bowl of washing up liquid and then into the pepper water.
4. The pepper ‘microbes’ will move towards the edges of the bowl as the soap hits the surface of the water.
5. Tell the students that this shows why using soap when you wash your hands is important, because it breaks up the oils on the surface of your hands that microbes stick to and then they can be rinsed away under running water.
Rinse the pepper water bowls, dry with kitchen towels and reset between groups.

Washing your hands is the best tactic to stop the spread of any harmful microbes and preventing people getting ill. Although washing hands in water alone, or in cold water eliminates visible dirt, soap is required to break up the oil on the surface of the hands that can trap microbes.

**What’s in a hand shake?**
Most microbes on our hands are harmless or even good for our skin. Sometimes however, we can pick up potentially harmful microbes from the things we touch every day e.g. toilet handles, raw food, dishcloths and other peoples hands when we shake them! Look at the fingerprint images below and see how far the microbes on the first persons hand have spread.

**When should you wash your hands?**
- Before during and after preparing food especially raw meat
- After using the toilet.
- After exposure to animals or animal waste.
- After coughing, sneezing or blowing your nose.
- If you’re ill or have been around ill people.

**How should you wash your hands?**
How we wash our hands is just as important as when we wash them, especially when it comes to eliminating harmful microbes. We don’t need any special cleaners or cleaning equipment — just soap and water.

**Why wash your hands?**
- To remove germs from your hands and environment.
- To reduce the occurrence of infections for yourself and others.
- To help prevent the spread of infection

**Facts on hand hygiene**
- In 1847, Dr Ignaz Semmelweiz demonstrated that hand washing could prevent infection.
- According to CDC, the single most important thing we can do to keep from getting sick and spreading illness to others is to clean our hands.
- Nearly 22 million school days are lost due to the common cold alone.
- Some viruses and bacteria can live from 20 minutes up to 2 hours or more on surfaces like cafeteria tables, doorknobs, and desks.
- Proper hand hygiene demonstrated by ‘people in charge’ has been shown to positively influence others’ compliance by up to 70%.

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Please use this space to make notes on the Horrid Hands stand.
Super Sneeze

Learning Objectives

- There can be harmful microbes in your sneezes
- Microbes can travel through the air
- Microbes can spread to other people through your sneezes
- Sneeze can spread germs a long way
- If you sneeze into your hand you should always wash your hand afterwards
- Sneezing into a tissue is the best way to stop the spread of colds and flu germs

Materials

- ‘Snot gun’ – Spray gun
- Bart Simpson plastic mask
- Green food colouring
- White wallpaper
- Disposable Gloves (non latex)
- Kitchen roll
- Tissues
- Tablecloth
- Bin liner
- Duct tape
- Jar of ‘snot’

Set up

1. Set up the sneezing runway by placing white wallpaper along a table. Two tables may be pushed together to create longer runway.
2. Fill the spray gun with water and add green food colouring.
3. If necessary, prepare a jar of ‘snot’ using the recipe.
This activity centres on the ‘sneezing runway’ which runs the length of the designated space. The activity demonstrates the importance of covering coughs and sneezes with a tissue to prevent the spread of microbes.

1. Ask the students if anyone knows why we sneeze. Explain that it helps our body get rid of microbes.
2. Ask if anyone knows what is in a sneeze. Be sure to interact with the children and use language like snot, bad bugs and germs. Show the children the jar of snot and explain that we produce 2 pints of snot every day.
3. Then ask how far they think a sneeze travels, this is 2-3 meters or the length of a double-decker bus, so if someone at the back of the bus sneezed, all those germs could hit the bus driver in the back of the head!
4. Hook the spray gun into the Bart Simpson mask and ask a volunteer to pull the trigger on the count of 3, whilst everyone joins in to say ‘achoo!’.
5. Point out that the germs have spread everywhere, right to the end of the runway
6. Ask what they would naturally do if they felt a sneeze coming on - put a hand over their mouth.
7. Demonstrate this by giving a glove to another volunteer and ask them to ‘catch’ the sneeze in their hand whilst a different volunteer sprays the gun and everyone shouts ‘achoo!’.
8. Show the glove to everyone and say how the harmful germs are now on your hand and could be passed to other people.
9. Dispose of the glove and do the demonstration again but covering Bart’s nose with a tissue, asking for new volunteers if possible.
10. Show how the tissue has captured all the germs and you can throw them away.
11. Finish by asking participants to chant together the NHS slogan “catch it, bin it, kill it” (catch the sneeze in a tissue, put it in the bin, then kill it by washing your hands).
Giant Sneezes

What’s in a Sneeze?

What is a Sneezee?
Sneezing is a way in which our body tries to get rid of all the bad bugs and dust. The bugs and dust get caught on the nose hair and tickle our nose. The nose sends a message to the brain which then sends a message back to your nose, mouth, lungs and chest telling them to blow the irritation away.

To Sneeze or not to Sneeze
A sneeze can spread germs 2-3 meters or over 5ft at a speed of 100 miles per hour!

How can our nose stop us getting ill?
We breathe in more than 20,000 litres of air a day mostly through our nose.

Sneezing FACTS!
- The world record for sneezing was held by Donna Griffiths of Worstershire who sneezed for 978 days in a row.
- Some cultures think that sneezing is a sign of good luck — others think it’s a sign of death.
- You cannot sneeze without closing your eyes.
- It's illegal to burp or sneeze in a church in Nebraska, USA.
- You produce 2 pints of snot every day and most of this you swallow without thinking.
- Some doctors use the colour of your snot to tell if you are ill.
- There are more than 200 cold viruses but only a few types of flu.
- Antibiotics will NOT cure the flu.

Sneezing FICTION!
In the old days, people were very worried about sneezing - here are some of the things they believed:
- Your eyes will pop out if you keep them open when you sneeze.
- Your heart stopped when you sneezed.
- You can catch a cold by going out with wet hair.
- Your soul leaves your body when you sneeze.

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Please use this space to make notes on the Super Sneezes stand.
How Clean Is Your Kitchen?

Learning Objectives
- There can be harmful microbes found on raw food, especially raw meat
- The best way to destroy harmful microbes on meat is to cook thoroughly
- Always wash your hands after touching raw meat
- Raw meat should be kept on the bottom shelf of the fridge
- Do not use the same chopping board and knife to chop raw and cooked meat
- Meat and vegetables should be chopped on different chopping boards

Materials
- Toy ovens
- Plastic chopping boards
- Plastic food including demonstration meats
- Plastic knives
- Paper plates
- White play dough for chicken fillets
- A box containing GlowGerm powder and a UV light.
- Table cloths

Set up
1. Prepare chicken fillets from playdough and cover in GlowGerm powder.
2. Set out the food, chopping boards and toy ovens.
In this experiment the participants make a chicken dinner and then the UV light is used to show how germs have spread around the kitchen area. Try to make sure children have access to chopping boards, plates, plastic food and microwaves and encourage them to ask questions.

1. Invite the children to prepare a chicken dinner using the play dough chicken fillet. Ask them to cut up the chicken with a plastic knife.
2. Encourage the children to cook the chicken in the oven and select other foods to go in the dinner.
3. Afterwards ask them what they forgot to do whilst making their food - wash their hands.
4. Point out that they should have used different chopping boards for cutting up the chicken and preparing the raw ingredients – in a professional kitchen they use different coloured chopping boards for different groups of food.
5. Say you can see where the germs from the chicken fillet have spread using the special ‘microbe detector’ UV light.
6. Float the UV light over their hands and kitchen equipment to show where the bad germs have spread and be very energetic and horrified.
7. Explain what types of bad bacteria (e.g. Salmonella, Campylobacter, E. coli) can be found in raw meat and the importance of hand washing whilst cooking and before eating a meal. Use the different types of plastic meats to help explain.
8. Ask them if they think that harmful microbes can be found on other types of food as well. Explain that harmful microbes can be found on other foods too, so for instance it is important to wash vegetables and fruit well before eating.
How Clean is Your Kitchen?

The GOOD
Microbes are found everywhere and many of these are harmless or even good for us. Some microbes are used in the food industry.
- The yeast *Saccharomyces cerevisiae* is used to make bread and beer.
- Rhizobacteria are soil bacteria that help plants absorb food and water from the ground to help them grow.
- Lactobacilli are bacteria used in yogurt and cheese making.
- Without these microbes, we would not be able to survive.

The BAD
Unfortunately, there are some microbes which are found on food - mainly raw meats, which can be harmful to us. These microbes are generally found in the gut of the animal and do not cause them any harm but when they find their way into our gut, they can make us really ill!
- Salmonella, *E.coli* and Campylobacter are commonly found on raw meats and can cause diarhoea and vomiting in humans and sometimes even death.
- The most common cause of viral food borne illness is due to the norovirus. This virus is usually spread through faecally contaminated water or food and can spread from person to person very easily.

The UGLY
There are many microbes that do not cause us any harm but which cause food spoilage. These are generally mold or bacteria.
- The fungus *Rhizopus stolonifer* causes bread mould.
- *Pseudomonas* bacteria cause the green discoulouration on bacon and other meat.

How can we prevent food poisoning and delay food spoilage?
Most microbes we find on food like to grow in warm and damp places where they can live and multiply but they hate places that are too warm or too cold. This is why we keep our food in the fridge and cook our meat well before we eat it.

Did you know?
Chefs use different coloured chopping boards for different food groups to prevent microbes spreading from one food to another.

Top tips on food safety
- Plastic chopping boards are much easier to clean than wooden ones!
- Always wash hands after handling raw meats.
- Wash all fruit and vegetables before eating.
- Always cook raw meat well before eating.
- Refrigerate all leftover cooked food and eat within 3-4 days.
- Never refreeze food.

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Notes - Please use this space to make notes on the ‘How clean is your kitchen?’ stand
Materials

- Plastic pipettes
- Vinegar
- Indicator
- Glass test tubes
- Test tube holder
- Water

Set up

1. Prepare test tubes by filling a third full with water and adding a drop of indicator. This will turn the water purple. Prepare enough tubes for the whole day.
2. Dilute vinegar in a bowl with water.
3. Test the experiment to see how many drops of vinegar are required to turn the solution in the test tube yellow. Ideally this should be around 7.
4. Keep the yellow solution to show the children.

Learning Objectives

- Antibiotics are special medicine that only work on bacteria
- You should only take antibiotics prescribed by your doctor, and you should always take the whole course of antibiotics
- Never take anyone else’s antibiotics
- Antibiotics do not work on viral infections like most coughs, colds and flu
- Bacteria are becoming resistant to antibiotics
- We can help prevent more bacteria from becoming resistant to antibiotics by following the rules stated above
Instructions

Unlike the other activities this is a demonstration due to safety reasons, so make sure that children will be able to see what you are doing. Throughout this demonstration it may be useful to hold up a giant microbe teddy to illustrate your point, so collect a few for the stand – MRSA, Penicillium, Rhinovirus and Sore throat and hold them up when you refer to antibiotic resistant bacteria, antibiotics, colds, and bacterial infection respectively.

1. Tell the children that we are going to learn about special medicines called antibiotics. Ask if anybody knows what an antibiotic is and if anyone has ever had them. Explain that antibiotics kill bacteria and make us feel better if we have a bacterial infection.

2. Remind the children that antibiotics don’t work against viruses. Use examples such as colds and flu.

3. Explain that it is very important for us to finish our full dose of antibiotics, and that this experiment will show us why.

4. Show the children the test tube containing the yellow solution and say that it represents a person’s body, and the colour yellow means that the person is completely healthy with no bacterial infection.

5. Hold up one of the test tubes that were pre-prepared with the purple solution and say that whenever we see the colour purple, we know that bacteria are present in the person’s body, making them unwell.

6. Ask the group whether they think that antibiotics can make the ill person better – if they say yes encourage them and remind them that antibiotics should help because this is a bacterial infection.

7. Say that the doctor has prescribed a course of 7 antibiotics for the person to take (adjust to your test from the morning).

8. Start to add drops of the dilute vinegar using a pipette and ask the children to count with you – you can include days of the week and time of day too.

9. Halfway through the dosage show the children that some of the solution has turned yellow – say that this shows that the person is feeling better.
10. Then mix the solution with a pipette (it will stay purple) and say that even though the person is feeling better, the solution is still purple showing the bacteria are still there, so they must keep taking their antibiotics until they are completely healthy.

11. Finish adding the dose and mix to make the solution yellow.

12. Tell the children that because they finished the whole course of antibiotics, the person is completely healthy.

13. Explain that if the person didn’t finish the whole course of antibiotics, the bacteria could have come back stronger. Ask if anyone has heard of superbugs or MRSA. Explain that bacteria can become resistant to antibiotics.
Antibiotic Awareness

Antibiotics have been rated as the 2nd most important medicinal advancement this century. Some microbes can cause serious and sometimes fatal diseases. Most of the time our immune system defeats these harmful microbes but sometimes it needs help. Antibiotics are special medicines used by doctors to kill harmful bacteria.

In 1901, the average life expectancy in the United Kingdom was 47 years. By the year 2000 it had risen to 77 years thanks to modern medicinal advancements!

Antibiotic Resistance

- Penicillin is the most ground-breaking discovery in the history of medicine but overuse and improper use has allowed many harmful bacteria to be able to fight back!
- These harmful bacteria are winning the battle against antibiotics and the development of new medicines has reached almost a standstill.
- One third of developed antibiotics now don’t work against many bacteria.
- The first microbe to fight back and become resistant to antibiotics was Staphylococcus aureus. MRSA (Methicillin Resistant Staphylococcus aureus) is still a serious problem in our hospitals.

The discovery of Penicillin – the first antibiotic!

- Millions of people all over the world are alive and well because of Penicillin and other antibiotics like it.
- The first antibiotic was discovered by Alexander Fleming by accident in 1928.
- He was a messy scientist and one day he noticed that mould had grown on some of his plates.
- He saw that the bacteria couldn’t grow near the mould, something had killed the bacteria!
- Fleming called the bacteria-killing chemical Penicillin.
- By 1934 Fleming just couldn’t get enough penicillin out of the mould to use it so he gave up and went on to something different!
- In 1938, Howard Florey and Ernst Chain decided to look at Penicillin. They also struggled to get enough Penicillin to treat people with. Their first patient started to get better — but the Penicillin ran out and he died!
- Florey and Chain took their mould to the United States and some of the big US chemical companies helped them make Penicillin on a big scale.
- Penicillin was used to save many of the soldiers in World War II — and millions more people afterwards - from infectious diseases.

What would you do?

You should NEVER use other people’s antibiotics. There are many different types of antibiotic which treat different bacterial infections. Someone else’s antibiotic might not be able to work on your infection.

The doctor is right; antibiotics only work on bacterial infections. Coughs and colds are caused by viruses and in many cases your body’s own natural defences will fight these infections.

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Antibiotics
Worn out wonder drugs?

Diseases caused by microbes are the second highest cause of death in the world, so our ability to treat microbial infections is very important! Bacteria are a type of microbe that can cause some of these infections. Antibiotics are special life-saving medicines that are used to kill bacteria. Many people take antibiotics for granted, rather than seeing them as amazing medicines that we can’t do without!

What is antibiotic resistance?

Some antibiotics don’t work anymore because the bacteria they are designed to destroy learn how to fight back and become resistant to the antibiotic. By overusing or misusing antibiotics we help bacteria to win the race against antibiotics. Infections caused by these antibiotic resistant bacteria are very hard, sometimes impossible, to treat. This can be very dangerous, especially for people who have other health problems.

Fact... not fiction!

- Overuse can weaken the immune system by killing off the friendly bacteria we need to stay healthy
- Doctors give antibiotics to patients before surgery and cancer treatment to make it safer
- Farmers give antibiotics to animals to stop them getting sick and help them grow big and strong
- BUT the downside of using antibiotics a lot is that they can end up in sewage and the environment, which means that more disease-causing microbes might be exposed to them
- In the four years between 1983-1987, 16 new antibiotics were discovered, but only 2-4 new antibiotics have been discovered between 2008-2011

Why is it important?

- Overuse: Using antibiotics when they are not necessary, e.g. when you have a cold or the flu
- Misuse: Taking other people's antibiotics, not finishing your course of antibiotics, using 'old' stored antibiotics

Can’t we just make new antibiotics?

If bacteria are learning to fight back (becoming resistant) against antibiotics, shouldn’t we be making new antibiotics to replace the old ones? In fact there is very little research being carried out to find new antibiotics—WHY?

- It can take a drug company 10 years from the time of discovery to make an antibiotic available for us to use
- The development process can cost over £800 million
- It only takes bacteria 3 months to become resistant to a new antibiotic once we start to use it to treat infections!

This means that it is costing more and more to find and develop new antibiotics that work against the resistant bacteria and therefore fewer drug companies invest in research.

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Please use this space to make notes on the Antibiotic Awareness stand.
Workbook
Please complete this section throughout the workshop.

Day 1

How did you feel when you found out you were chosen to be a Peer Educator?

Did you find the training useful on Day 1?

Day 2

Which stand did you teach during Day 2 of the workshop?

How did you find teaching junior school children?
What was the hardest part about teaching others?

Overall

What did you enjoy most about the workshop?

What did you enjoy least about the workshop?

Would you recommend the workshop to other students and if so, why?
Please list three things that you learnt from the e-Bug roadshow

1.

2.

3.